

Serial No. 10/705,174
Docket No. 8681RCR2
Response date September 27, 2005
Reply to Office Action of June 27, 2005

REMARKS

Status of claims

Applicants thank the Examiner for the consideration given to the present application. Claims 1 and 10 have been amended. Support for the amendments are found in the specification and figures and thus no new matter has been entered in the claims. Claims 1-14 are pending in the present application.

Terminal Disclaimer

Applicants thank the Examiner for reviewing and accepting the terminal disclaimer filed on May 2, 2005 in this application, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,827,854 B2 and any patent granted on U.S. Patent Application No. 10/705,572 and 10/464,210.

Rejection of Claim 1-3, 5, and 8 under 35 U.S.C. §103

Claims 1-3, 5, and 8 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Levy, U.S. Patent No. 6,241,893 B1 in view of Derbyshire et al., U.S. Patent No. 6,057,262 and Hou et al., U.S. Patent No. 6,565,749 B1. Claim 10 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Beauman et al., U.S. Patent No. 4,396,512 in view of Derbyshire et al. Claims 4, 6-7, and 14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Levy in view of Derbyshire et al. and Hou et al. as applied to claim 1 above, and further in view of Beauman et al. Claims 11 and 13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Beauman et al. in view of Derbyshire et al. as applied to claim 10 above, and further in view of Tremblay et al., U.S. Patent No. 6,660,166.

With respect to independent claim 1, the Examiner asserted that Levy discloses all of Applicants' claim limitations except mesoporous activated carbon and cationic polymer. However, the Examiner further asserted that Derbyshire et al. teach mesoporous activated carbon particles and Hou et al. disclose a cationic polymer. The Examiner concluded that it would have been obvious to modify the primary reference, Levy, with the teachings of Derbyshire et al. and Hou et al. Regarding independent claim 10, the Examiner asserted that Beauman et al. disclose

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all of the elements of claim 10 except the pore size of the filter. However, the Examiner again asserted that Derbyshire et al. teach activated carbon that is mesoporous and thus it would have been obvious to modify the primary reference, Beauman et al., with the teachings of Derbyshire et al.

Applicants respectfully traverse these rejections and submit that the Examiner has not met his burden of establishing a prima facie case of obviousness under §103. MPEP §2145. In order to establish a prima facie case of obviousness under §103, the Examiner has the burden of showing, by reasoning or evidence, that: 1) there is some suggestion or motivation, either in the references themselves or in the knowledge available in the art, to modify that reference's teachings; 2) there is a reasonable expectation on the part of one of ordinary skill in the art that the modification or combination has a reasonable expectation of success; and 3) the prior art references (or references when combined) teach or suggest all the claim limitations. MPEP §2145.

Applicants' independent claims 1 and 10 recite a filter for providing potable water that includes, *inter alia*, a filter material disposed within the housing formed at least in part from a plurality of mesoporous activated carbon filter particles, wherein the filter material is operable to remove microorganisms. The mesoporosity of the carbon particles provides superior filtering attributes and removes very small particles, such as, microorganisms (e.g., bacteria, viruses, etc.).

Applicants respectfully submit that neither the references themselves (Levy, Beauman et al., Hou et al., or Derbyshire et al.) nor the knowledge available in the art provide any suggestion or motivation to combine Derbyshire et al. with Levy or Beauman et al. As asserted by the Examiner, Levy does not teach or suggest a mesoporous activated carbon and Beauman et al. do not teach or suggest the pore size of the filter. In an attempt to resolve these deficiencies in the primary references, the Examiner asserted that it would have been obvious to modify Levy and Beauman et al. with the element of Derbyshire et al., "because it is an activated carbon used in waste water treatment." This is insufficient as evidence of motivation to combine Derbyshire et al. with either Levy or Beauman et al. Applicants assert that just because Derbyshire et al. teach using mesoporous activated carbon in waste water treatment, it does not (and would not have) necessarily suggest or translate into Derbyshire et al.'s mesoporous activated carbon being

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operable to remove microorganisms from water as recited in Applicants' claims 1 and 10. Applicants submit that this is a fairly large leap of faith by the Examiner.

As stated by the Federal Circuit Court in *In re Fine*, "Whether a particular combination might be "obvious to try" is not a legitimate test of patentability. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) (citing *In re Geiger*, 815 F.2d 686, 688 (Fed. Cir. 1987). First, neither Levy nor Derbyshire et al. disclose, or even suggest, using mesoporous activated carbon particles to remove microorganisms. Both are completely void as to any teaching on a mesoporous activated carbon filter operable to remove microorganisms. Second, Applicants submit that Derbyshire et al. actually teach away from using a mesoporous activated carbon to remove small molecules such as microorganisms (e.g., *E. coli*, bacterium). For example, Derbyshire et al. disclose that "Microporous carbons (i.e. carbons in which the majority of the pores have diameters less than 2 nm) are most effective for the a[b]sorption of small molecules while mesopore carbons (i.e. carbons in which a large proportion of pores have diameters in the range 2-50nm) are used for the a[b]sorption of large molecules such as color bodies." (col. 1, lines 30-35). One skilled in the art would have known that most microorganisms are small in size (e.g., *E. coli* is approximately 26 nm in size) and thus would have understood Derbyshire et al. as teaching away from using mesoporous activated carbon for the removal of microorganisms in water.

Finally, Applicants submit that the knowledge available in the art at the time of the invention also followed this teaching of Derbyshire et al. As set forth above, microorganisms generally have a small size (e.g., *E. coli* is approximately 26 nm in size) and thus would generally fall within the pore diameter range of mesoporous activated carbon (e.g., pore diameter = 2 nm - 50 nm). Because of the small size of microorganisms compared to the pore sizes of mesoporous activated carbon particles, it was believed by those skilled in the art at the time of the present invention that mesoporous activated carbons could not effectively remove (absorb) microorganisms. Therefore, Applicants respectfully submit that there is insufficient motivation or suggestion in the references themselves or in the knowledge available in the art to modify Levy or Beauman et al. with the teachings of Derbyshire.

Moreover, even if combined, one of ordinary skill in the art would not have had a reasonable expectation of success. As set forth above, Derbyshire teaches that mesoporous carbon is more effective in removing larger molecules, while microporous carbon is more

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effective at removing smaller molecules such as microorganisms. Mesoporous activated carbon includes a significant amount of pores with diameters (e.g., 2nm to 50 nm) that are larger than small-sized microorganisms (e.g., *E. coli*'s = about 26 nm) and thus provides the potential for a significant amount of the microorganisms to pass through (not absorb/remove) the mesoporous carbon filter. Applicants assert that such teachings and knowledge would cause one of ordinary skill in the art to have no reasonable expectation that the combination of Derbyshire et al.'s mesoporous activated carbon with Levy or Beauman et al.'s filter would successfully remove microorganisms from water as claimed by Applicants' claims 1 and 10.


Accordingly, Applicants respectfully request the rejection under 35 U.S.C. §103 of independent claims 1 and 10 be withdrawn. As claims 2-9 and 11-14 depend from independent claims 1 or 10, Applicants respectfully request the rejection of these claims be withdrawn as well.

CONCLUSION

Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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